UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
NA-S&PF
6816 Market Street
Upper Darby, Pennsylvania 19082

REPLY TO: 3420

April 14, 1970

SUBJECT: White Pine Blister Rust Control

TO:

During the past six or eight months we have conducted field training with many of you in the procedures of Control Area Evaluation (White Pine Blister Rust Control Area Evaluation - 1969). Questions were asked which we did not feel we could answer satisfactorily at that time. These were forwarded to Dr. Robert J. Marty who authored U. S. F. S. Research Paper NE-45, 1966 - Economic Guides for Blister Rust Control in the East. Dr. Marty is now Associate Professor of Forest Economics at Michigan State University.

We thought all people involved in the cooperative BR program would be interested in his answers. The best way to present this seems to be to state the question then follow with Dr. Marty's answer and any comments we may have.

QUESTION. With control efforts being aimed at white pine in the seedling and sapling and young pole sizes, could the years to harvest, as used in the First Order Conditions, be safely increased to 40 years to harvest?

ANSWER. "For control blocks in zones of high climatic hazard, control should be considered until the stands are within 20 years of harvest as the instructions now provide. However, for blocks in the low hazard zone, control can cease 40 years before harvest. You may lose an occasional stand or clump of older trees in this way, but surely not many."

OUR COMMENTS. The word "considered" in the first sentence of the answer seems to be the key word. This, we believe, leaves it to the judgment of the individual responsible for control decisions to decide if control

is needed up to 20 years before harvest. Knowledge of many aspects would enter into such decisions including (1) history of rust in the area, (2) history of control work, (3) ribes populations, (4) normal rotation cycle, (5) growing site, (6) stand composition (even aged or mixed ages), (7) tree quality, (8) the possibility of another white pine stand following the present stand, (9) management plans for the stand, and (10) stand quality.

In other words, even in high hazard zones control may cease 40 years before harvest if the individual responsible, after considering all factors, believes no serious BR losses will occur.

QUESTION. Can two or more small individual pine stands within the same road block be evaluated as one stand of pine?

ANSWER. "You should try whenever possible to locate at least 20 sample plots within each pine area to be evaluated. In the case of several small pine areas within the same road block, these may be considered a unit and the 20 plot sample distributed among them as long as they are reasonably alike with regard to site index, age, and stocking of pine."

QUESTION. Would the evaluation results be valid in small white pine stands where it is not possible to get 20 sample plots?

ANSWER. "When small pine areas are sampled separately, locate as many of the 20 sample plots as possible within them, maintaining a one-chain distance between plot centers. Parallel lines of plots do not have to be five chains apart in these circumstances. When there are less than 20 plots, even so, increase the number of trees examined for infection at each plot so that 200 pine are examined in all."

COMMENT. When a stand with less than 20 sample plots is evaluated, it must be remembered that the equation used in determining Factor F must be adjusted accordingly.

The proper equation would be:

$$\frac{C \text{ (No. stocked plots)}}{\text{Total number of plots}} \times D \quad \text{do not use} \quad \frac{C}{20} \times D$$

QUESTION. Using 20 sample plots and 200 white pines examined for BR infection in each white pine stand being evaluated, would results be as reliable for a 300 acre, or larger stand, as for a 30-acre stand?

ANSWER. "For pine areas that exceed forty acres, it would be wise to increase the number of sample plots as follows:

| Size of Pine Area | No. of Sample Plots |
|---|---|
| 40 acres or less | 20 |
| 41 - 80 | 25 |
| 81 - 160 | 30 |
| 161 - 320 | 35 |
| 321 - 640 | 40 |
| 641 or more | 45 |

You should not need more than 45 sample plots even for large pine areas of 1,000 to 2,000 acres as long as the plots are well distributed over the area."

COMMENT. If more than 20 sample plots are examined in evaluating a white pine stand, then appropriate adjustments must be made in equations for determining Factors F and G as there will be more than 20 plots used in Factor F and more than 200 trees examined for infection in Factor G.

QUESTION. In some stands we are finding that the average number of pines on occupied 1/200 acre plots is less than 2. Would it be possible to show a line on the diagram on Figures 1 and 1A in the March, 1969 instructions for 1 white pine per 1/200 acre plot? This would permit accurate plotting where the average is less than 2.

ANSWER. "Regarding Figure 1 and 1A, I note an error in numbering the vertical axes: 50 as shown should read 45; 60 as shown should read 50. The one-tree curve in both diagrams is a straight line between the 0%-0% and the 50%-50% points on the diagram."

COMMENT. Those having copies of March, 1969 instructions should be requested to make these corrections and additions.

QUESTION. Should pruned trees be examined for infection?

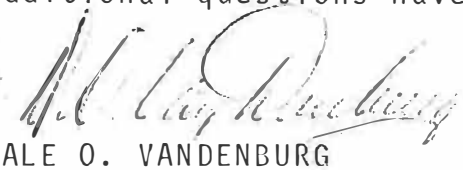
ANSWER. "The effect of pruning on potential losses is not known as far as I am aware. It may prove to reduce infection incidence, and you might consider pine areas where crop-trees have been pruned always to be in the low hazard zone. I would not go further than this."

QUESTION. In some states the man-day cost of $28 has been questioned as being high. How often should this cost figure be recomputed?

ANSWER. "The cost-figure of $28 was derived by taking the total expenditure for BRC and dividing it by the number of days of control. So this figure is a total cost figure, as it must be. What can be done to accommodate individual states is to compute cost by state. Costs for some states will be higher than the average, others lower. The cost figure, whether a single regional average or a set of state averages, should be recomputed each year to reflect the last fiscal year's cost experience."

COMMENT. In most cases it is doubtful that the states have total cost figures available, that is, figures which include Field Office and Area Office overhead costs. As Dr. Marty states, the figure must be the total cost figure. If any states would like to have man-day cost figures computed for their state, we can do it. It would probably give a more realistic comparison between cost of control and value saved.

If there are any questions about these answers, or if additional questions have come up, please let us know.



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